

WHAT IS CLAIMED IS:

1. A power supply apparatus comprising:  
a sequence control unit to which a power source  
control chip is added;
- 5       output producing means for producing an output  
conforming to a PWM signal from said power source  
control chip, and feeding back an output detection  
signal to said power source control chip; and  
a signal line for connecting said power source  
10      control chip and said output producing means together,  
wherein a modulated wave amplitude-modulated  
with said PWM signal as a carrier wave and with said  
output detection signal as a modulating wave is  
transmitted to said signal line.
- 15      2. A power supply apparatus comprising:  
an image processing unit to which a power  
source control chip is added;  
output producing means for producing an output  
20      conforming to a PWM signal from said power source  
control chip, and feeding back an output detection  
signal to said power source control chip; and  
a signal line for connecting said power source  
control chip and said output producing means together,  
25      wherein a modulated wave amplitude-modulated  
with said PWM signal as a carrier wave and with said  
output detection signal as a modulating wave is

transmitted to said signal line.

3. An image forming apparatus comprising:  
a power supply apparatus as recited in Claim 1,  
5 wherein a sequence control unit of said power  
supply apparatus comprises an ASIC and effects  
sequence control.

4. An image processing apparatus comprising:  
10 a power supply apparatus as recited in Claim 2,  
wherein an image processing unit of said power  
supply apparatus comprises an ASIC and effects image  
processing.

15 5. An image forming apparatus according to  
Claim 3, wherein output producing means of said power  
supply apparatus produces a high voltage output for  
at least one of charging, transferring, developing,  
sheet separating, cleaning and charge removing.

20 6. An image processing apparatus according to  
Claim 4, wherein output producing means of said power  
supply apparatus produces a high voltage output for  
at least one of charging, transferring, developing,  
25 sheet separating, cleaning and charge removing.

7. A switching power supply apparatus

comprising:

    voltage producing means for producing a predetermined voltage; and  
    controlling means for controlling the voltage  
5 by a digital circuit,  
    wherein said voltage producing means has a transformer, rectifying and smoothing means for rectifying and smoothing an output of said transformer, driving means for driving said  
10 transformer, detecting means for detecting an output obtained by said rectifying and smoothing means, and modulating means for modulating with a detection output detected by said detecting means as a modulating wave, and  
15     wherein said controlling means has demodulating means for demodulating the detection output from a signal modulated by said modulating means, sample hold means for sampling and holding said demodulated detection output, A/D converting means for converting  
20 an output of said sample hold means into a digital signal, comparing means for comparing an output of said A/D converting means with an output target value, a counter adapted to be operated in conformity with an output of said comparing means, and PWM signal  
25 producing means for producing a PWM signal for driving said driving means.

8. A switching power supply apparatus according to Claim 7, wherein said modulating means modulates with the PWM signal for switching said driving means as a carrier wave.

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9. A switching power supply apparatus according to Claim 8, wherein said modulating means amplitude-modulates the carrier wave.

10 10. A switching power supply apparatus according to Claim 9, wherein said modulating means varies a signal level of a period for which said PWM signal switches on said driving means to thereby amplitude-modulate.

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11. A switching power supply apparatus according to Claim 9, wherein said modulating means varies a signal level of a period for which said PWM signal switches off said driving means to thereby amplitude-modulate.

20 12. A switching power supply apparatus according to Claim 7, wherein said controlling means is made integral with an ASIC for sequence control as a control chip.

25 13. A switching power supply apparatus

according to Claim 7, wherein said controlling means is made integral with an ASIC for image processing as a control chip.

5           14. An image forming apparatus comprising:  
              a switching power supply apparatus as recited  
              in Claim 7,  
              wherein said switching power supply apparatus  
              is a high voltage source for image forming.